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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/520,703

01/10/2005

Werner Helms

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2544

22428

7590

05/12/2006

FOLEY AND LARDNER LLP
SUITE 500
3000 K STREET NW
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EXAMINER

WALBERG, TERESA J

ART UNIT

PAPER NUMBER

3753

DATE MAILED: 05/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/520,703

Applicant(s)

HELMS ET AL.

Examiner

Teresa J. Walberg

Art Unit

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/10/05</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4-6, and 9 are rejected under 35 U.S.C. 102(a) as being anticipated by Frost (WO 02/04881).

Frost discloses a heat exchanger having tubes (4) and at least one header box (2,3), the header box having at least one tube plate (Fig. 4), the tube plate having a substantially planar central region (at 107 in Fig. 18) with tube openings into which the tubes (4) can be fitted, and at least one side region which is rounded or angled off with respect to the central region, characterized in that at least one tube opening extends to the at least one side region or into the at least one side region (Fig. 18), the at least one side region having a plurality of rounded portions with different radii of curvature (Figs. 18 and 19), the at least one side region being convex in form (Figs. 18 and 19), and the at least one tube opening being delimited by a rim which faces into the at least one header box (see Fig. 6).

3. Claims 1, 3, 5, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamiya et al (5,307,870).

Kamiya et al disclose a heat exchanger (Fig. 1) having tubes (22) and at least one header box (20), the header box (20) having at least one tube plate (28), the tube plate having a substantially planar central region (38) with tube openings (42) into which the tubes (22) can be fitted, and at least one side region (36) which is rounded or angled off with respect to the central region (Fig. 2), characterized in that at least one tube opening (42) extends to the at least one side region or into the at least one side region (Fig. 2), the at least one side region having a rounded portion with an approximately constant radius of curvature (at 36), the at least one side region being convex in form (Fig. 2), and the at least one tube opening being delimited by a rim (at 42 in Fig. 3) which faces into the at least one header box, and the rim being lower in the at least one side region of the tube plate than in the central region (see upper dotted line in Fig. 2).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Frost (WO 02/04881) or Kamiya et al (5,307,870) in view of Kono et al (JP 10-132487).

Frost and Kamiya et al each show heat exchangers having the claimed structure with the exception of the at least one side region having at least one planar subregion. Kono et al teach providing a side region having at least one planar subregion (at 2 in Fig. 1). It would have been obvious in view of Kono et al to use a planar subregion in the tube plates of Frost and Kamiya et al, the motivation being to provide easier manufacturing of the device.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Frost (WO 02/04881) or Kamiya et al (5,307,870) in view of Baumann et al (DE 19757034).

Frost and Kamiya et al each show heat exchangers having the claimed structure with the exception of the tube opening being delimited by a rim which faces out of the header box. Baumann et al teach providing a tube opening being delimited by a rim (10) which faces out of the header box (at 3). It would have been obvious in view of Baumann et al to use a tube opening which is delimited by a rim which faces out of the header box in the tube plates of Frost and Kamiya et al, the motivation being to provide a more secure connection between the tube and the header.

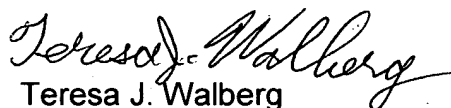
7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Howells and Yamamoto et al are cited to show header structure.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on 571-272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Teresa J. Walberg
Primary Examiner
Art Unit 3753

tjw